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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/510,207	12/08/2004	Kia Silverbrook	MJ92US	8639

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AUSTRALIA

EXAMINER

DO, AN H

ART UNIT PAPER NUMBER

2853

DATE MAILED: 12/04/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/510,207

Applicant(s)

SILVERBROOK, KIA

Examiner

An H. Do

Art Unit

2853

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 20 September 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 7-16 is/are pending in the application.
- 4a) Of the above claim(s) 7-10 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 11-13 and 16 is/are rejected.
- 7) ☒ Claim(s) 14 and 15 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- 1) ☐ Certified copies of the priority documents have been received.
  - 2) ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date See Attachments.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_.

### **DETAILED ACTION**

The Amendment and Terminal Disclaimer filed on 20 September 2006 have been acknowledged.

#### ***Election/Restrictions***

1. This application contains claims 7-10 drawn to an invention nonelected with traverse in Office Action mailed on 22 June 2006. A complete reply to the final rejection must include cancellation of nonelected claims or other appropriate action (37 CFR 1.144) See MPEP § 821.01.

#### ***Terminal Disclaimer***

2. The terminal disclaimer filed on 20 September 2006 disclaiming the terminal portion of any patent granted on this application which would extend beyond the expiration date of U.S. Patent No. 6,648,453 has been reviewed and is accepted. The terminal disclaimer has been recorded.

#### ***Information Disclosure Statement***

3. The information disclosure statements (IDS) submitted 20 September 2006 and 30 October 2006 were filed and are being considered by the examiner.

#### ***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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5. Claims 11-13 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mitani et al (US 5,697,144) in view of Usui et al (EP 0416540 A2).

Regarding claim 11, Mitani et al discloses in Figure 1 an inkjet printhead chip that comprises a wafer substrate (1); a CMOS drive circuitry layer (2) positioned on the wafer substrate (1), and a plurality of nozzle arrangements positioned on the wafer substrate (1) and the CMOS drive circuitry layer (2), each nozzle arrangement comprising nozzle chamber walls and a roof wall (11) that define a nozzle chamber (9) and an ink ejection port (12) defined in the roof wall (11), and the roof wall (11) being spaced between 2 microns and 15 microns (column 4, lines 61-65) from the CMOS drive circuitry layer (2).

Regarding claims 12 and 13, it is also disclosed that the roof wall (11) is spaced between 5 microns and 12 microns and between 6 microns and 10 microns (column 4, lines 61-65) from the CMOS drive circuitry layer (2).

Regarding claim 16, it is further disclosed in Figure 9 that an ink jet printhead (column 7, lines 15-19) that includes a plurality of printhead chips (1, 8, 11).

Mitani et al discloses the claimed invention except for reciting a micro-electromechanical actuator having at least one movable member positioned to eject the ink from the ink ejection port on receipt of a signal.

Usui et al teaches in Figure 10 a micro-electromechanical actuator (44) having at least one movable member (47, 48) positioned to eject the ink from the ink ejection port on receipt of a signal.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have a micro-electromechanical actuator having at least one movable member, as taught by Usui et al into Mitani et al, for the purpose of increasing the pressure on the ink and eject the pressurized ink toward a recording sheet from the nozzles (column 6, lines 49-54).

***Allowable Subject Matter***

6. Claims 14 and 15 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

The primary reason for the allowance of claim 14 is the inclusion of the limitations of an inkjet printhead that includes the nozzle chamber walls and roof walls of each nozzle arrangement configured so that the nozzle chambers are generally rectangular in plan and transverse cross section, each movable member being planar and rectangular to extend across a length of its respective nozzle chamber, with a free end of the movable member positioned between the CMOS drive circuitry layer and the ink ejection port and an opposed end of the movable member being anchored to the CMOS drive circuitry layer, the movable member incorporating heating circuitry that is electrically connected to the CMOS drive circuitry layer, the movable member being configured so that, when the heating circuitry receives a signal from the CMOS drive circuitry layer, the movable member is displaced towards the ink ejection port as a result

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of differential expansion and, when the signal is terminated, the movable member is displaced away from the ink ejection port as a result of differential contraction. It is these limitations found in the claims, as they are claimed in the combination of, that has not been found, taught or suggested by the prior art of record which makes these claims allowable over the prior art.

The primary reason for the allowance of claim 15 is the inclusion of the limitations of an inkjet printhead that includes the movable member having an actuator arm of a conductive material that is configured to define a heating circuit that is connected to the CMOS drive circuitry layer and is configured to deflect towards the wafer substrate as a result of differential expansion when an electrical signal is received from the CMOS drive circuitry layer, and the roof wall of the nozzle chamber and at least part of the nozzle chamber walls connected to the actuator arm, so that, when the actuator arm is deflected towards the wafer substrate, ink is ejected from the ink ejection port defined in the roof wall. It is these limitations found in the claims, as they are claimed in the combination of, that has not been found, taught or suggested by the prior art of record which makes these claims allowable over the prior art.

### ***Response to Arguments***

7. Applicant's arguments with respect to claims 11-16 have been considered but are moot in view of the new ground(s) of rejection.
8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

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§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

***Contact Information***

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to An H. Do whose telephone number is 571-272-2143. The examiner can normally be reached on Monday-Friday (Flexible).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen D. Meier can be reached on 571-272-2149. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

AD  
November 29, 2006



An H. Do  
Primary Examiner  
Art Unit 2853